

## AMENDMENTS

### In the Claims

Please cancel claims 2, 24, and 30-31 without prejudice.

Please amend claims 1, 4-11, 13, 20-23, 25-29, 32-49, 52, and 54-55 as shown herein.

Claims 1, 3-23, 25-29, and 32-56 are pending and are listed following:

1. (currently amended) A method, comprising:

receiving a synthesizer MIDI instruction to generate multiple streams of audio wave data with a synthesizer software component;

receiving ~~multiple streams of audio wave data in response to~~ requests from audio data buffers ~~wave data consumers~~ to route the multiple streams of audio wave data from the synthesizer software component to the audio data buffers;

dynamically generating a plurality of logical buses ~~instantiated as software components in response to a need associated with receiving the streams of audio wave data,~~ the logical buses each corresponding to an audio ~~wave data consumer~~ data buffer;

assigning at least one of the ~~multiple streams of~~ audio wave data ~~stream~~ to a plurality of the logical buses;

routing any audio wave data stream assigned to a particular logical bus to the audio ~~wave data consumer~~ data buffer corresponding to said particular logical bus; and

dynamically releasing at least one of the logical buses when no longer needed to route a stream of audio wave data.

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2. (canceled)

3. (original) A method as recited in claim 1, wherein a plurality of audio wave data streams are assigned to at least one of the logical buses.

4. (currently amended) A method as recited in claim 1, wherein each logical bus corresponds to a single audio data buffer ~~wave data consumer~~.

5. (currently amended) A method as recited in claim 1, wherein at least two of the logical buses correspond to the same audio data buffer ~~wave data consumer~~.

6. (currently amended) A method as recited in claim 1, wherein the audio ~~wave data consumer is a~~ data buffer ~~that~~ performs an action of buffering audio wave data prior to outputting the audio wave data.

7. (currently amended) A method as recited in claim 1, wherein the audio ~~wave data consumer~~ data buffer performs an action of effects-processing the audio wave data prior to outputting the audio wave data.

8. (currently amended) A method as recited in claim 1, wherein said assigning comprises creating a data structure and correlating the logical buses with corresponding audio data buffers ~~wave data consumers~~.

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2       **9. (currently amended)**     A method as recited in claim 1, wherein  
3 said assigning comprises creating a data structure and correlating the logical buses  
4 with corresponding audio data buffers ~~wave data consumers~~, and wherein said  
5 routing comprises referring to the data structure.

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7       **10. (currently amended)**    A method as recited in claim 1, wherein  
8 said ~~defining~~ generating comprises instantiating a programming object to receive  
9 the multiple streams of audio wave data.

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11       **11. (currently amended)**   A method as recited in claim 1, wherein  
12 said ~~defining~~ dynamically generating comprises instantiating a programming  
13 object to receive the multiple streams of audio wave data, and wherein said routing  
14 comprises calling an interface of the programming object.

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16       **12. (original)**     One or more computer-readable media comprising  
17 computer-executable instructions that, when executed, direct a computing system  
18 to perform the method of claim 1.

1           **13. (currently amended)**   An audio generation system  
2 implemented in a computing device, the audio generation system comprising:

3           a plurality of audio wave data sources ~~that produce one or more~~ from which  
4 streams of audio wave data are generated by a synthesizer software component;

5           a plurality of audio wave data consumers ~~that~~ configured to receive one or  
6 more of the streams of audio wave data;

7           a software component ~~that~~ configured to:

8                   dynamically ~~generates~~ generate logical buses ~~in response to a need~~  
9 ~~associated with receiving~~ instantiated as software components to route the  
10 streams of audio wave data to corresponding audio wave data consumers;  
11 ~~and that releases~~

12                   release at least one of the logical buses when no longer needed to  
13 route a stream of audio wave data to a corresponding audio wave data  
14 consumer, the logical buses corresponding respectively to the plurality of  
15 audio wave data consumers; and

16           ~~the software component configured to~~ receive one or more of the  
17 streams of audio wave data at each of the generated logical buses, and route  
18 any audio wave data that is received at a particular logical bus to an audio  
19 wave data consumer corresponding to said particular logical bus.

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21           **14. (original)**   An audio generation system as recited in claim 13,  
22 wherein each logical bus corresponds to a single audio wave data consumer.  
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1           **15. (original)**   An audio generation system as recited in claim 13,  
2 wherein at least two of the logical buses correspond to the same audio wave data  
3 consumer.

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5           **16. (original)**   An audio generation system as recited in claim 13,  
6 wherein a plurality of audio wave data streams are assigned to at least one of the  
7 logical buses.

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9           **17. (original)**   An audio generation system as recited in claim 13,  
10 wherein an audio wave data consumer is a data buffer that buffers one or more of  
11 the streams of audio wave data.

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13           **18. (original)**   An audio generation system as recited in claim 13,  
14 wherein an audio wave data consumer effects-processes one or more of the  
15 streams of audio wave data.

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17           **19. (original)**   An audio generation system as recited in claim 13,  
18 wherein an audio wave data consumer is a data buffer that buffers one or more of  
19 the streams of audio wave data and effects-processes the buffered audio wave  
20 data.

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22           **20. (currently amended)**   An audio generation system as recited in  
23 claim 13, wherein the audio wave data sources are software components.  
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1           **21. (currently amended)**     An audio generation system as recited in  
2 claim 13, wherein the audio wave data sources are programming objects having  
3 interfaces that are callable by a ~~software component~~ programmed application to  
4 generate the ~~one or more~~ streams of audio wave data.

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6           **22. (currently amended)**     An audio generation system as recited in  
7 claim 13, wherein the ~~sources include one or more synthesizers that generate the~~  
8 ~~one or more~~ streams of audio wave data are generated by at least an additional  
9 synthesizer software component.

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11           **23. (currently amended)**     An audio generation system as recited in  
12 claim 13, wherein ~~the sources include~~ a plurality of ~~synthesizers that~~ synthesizer  
13 software components generate the ~~one or more~~ streams of audio wave data,  
14 wherein at least one of the ~~synthesizers~~ synthesizer software components generates  
15 a plurality of outputs, and wherein respective ones of the outputs are provided to  
16 different respective logical buses.

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18           **24. (canceled)**  
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1           **25. (currently amended)**     An audio generation system, comprising:  
2           a synthesizer ~~that generates~~ software component configured to generate  
3           multiple streams of audio wave data in response to receiving one or more  
4           synthesizer MIDI instructions;

5           a plurality of audio ~~wave data consumers that~~ data buffers configured to  
6           receive the multiple streams of audio wave data;

7           a software component ~~that dynamically generates~~ configured to  
8           dynamically generate a plurality of logical buses ~~in response to a need associated~~  
9           ~~with receiving~~ instantiated as software components to route the multiple streams  
10          of audio wave data, an individual logical bus configured to correspond to an audio  
11          data buffer ~~wave data consumer~~, receive one or more of the streams of audio wave  
12          data, and route the one or more streams of audio wave data to the audio data buffer  
13          ~~wave data consumer~~; and

14          wherein the synthesizer software component is further configured to route  
15          at least one of the streams of audio wave data to different ones of the logical  
16          buses.

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18          **26. (currently amended)**     An audio generation system as recited in  
19          claim 25, wherein a second logical bus is configured to correspond to the audio  
20          data buffer ~~wave data consumer~~, receive one or more additional streams of audio  
21          wave data, and route the one or more additional streams of audio wave data to the  
22          audio data buffer ~~wave data consumer~~.

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1           **27. (currently amended)**     An audio generation system as recited in  
2 claim 25, wherein the synthesizer software component has a channel that generates  
3 a stream of audio wave data and that is configurable to route the stream of audio  
4 wave data to the individual logical bus and is further configured to dynamically  
5 release at least one of the logical buses when no longer needed.

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7           **28. (currently amended)**     An audio generation system as recited in  
8 claim 25, wherein the synthesizer software component has a channel that generates  
9 a stream of audio wave data and that is configurable to route the stream of audio  
10 wave data to a plurality of the logical buses, and wherein the logical buses receive  
11 the stream of audio wave data and route the stream of audio wave data to a  
12 plurality of corresponding audio data buffers ~~wave data consumers~~.

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14           **29. (currently amended)**     An audio generation system as recited in  
15 claim 25, wherein the synthesizer software component has a plurality of channels  
16 that each generate a stream of audio wave data and that are configurable to route at  
17 least one of the streams of audio wave data to a plurality of the logical buses, and  
18 wherein the logical buses receive the streams of audio wave data and route the  
19 streams of audio wave data to a plurality of corresponding audio data buffers ~~wave~~  
20 ~~data consumers~~.

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22           **30-31. (canceled)**



1           **32. (currently amended)**     An audio generation system as recited in  
2 claim 25, further comprising a second synthesizer software component configured  
3 to generate additional streams of audio wave data, and wherein the individual  
4 logical bus is configured to receive one or more of the additional streams of audio  
5 wave data and route the additional streams of audio wave data to the audio data  
6 buffer ~~wave data consumer~~.

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8           **33. (currently amended)**     An audio generation system as recited in  
9 claim 25, further comprising a second synthesizer software component configured  
10 to generate additional streams of audio wave data, and wherein a second logical  
11 bus is configured to correspond to the audio data buffer ~~wave data consumer~~,  
12 receive one or more of the additional streams of audio wave data, and route the  
13 additional streams of audio wave data to the audio data buffer ~~wave data~~  
14 ~~consumer~~.

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16           **34. (currently amended)**     An audio generation system as recited in  
17 claim 25, further comprising a data structure to correlate which of the logical  
18 buses correspond to an audio data buffer ~~wave data consumer~~.

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20           **35. (currently amended)**     An audio generation system as recited in  
21 claim 25, further comprising a data structure to correlate which of the logical  
22 buses correspond to an audio data buffer ~~wave data consumer~~, wherein the audio  
23 data buffer ~~wave data consumer~~ receives streams of audio wave data from the  
24 corresponding logical buses.  
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2       **36. (currently amended)**    A computer-based audio generation  
3 system, comprising:

4       a plurality of logical bus objects instantiated as software components  
5 configured to receive audio wave data, wherein each logical bus object  
6 corresponds to an audio data buffer wave data consumer, wherein each logical bus  
7 object is dynamically generated ~~in response to a need associated with receiving to~~  
8 route the audio wave data to a corresponding audio data buffer, and wherein at  
9 least one of the logical bus objects can be dynamically released when no longer  
10 needed to route a stream of audio wave data;

11       a data structure that correlates each logical bus object according to a  
12 function of an audio data buffer wave data consumer that corresponds to a logical  
13 bus object; and

14       wherein one or more streams of audio wave data are assigned to a logical  
15 bus object based on the function of an audio data buffer wave data consumer that  
16 corresponds to the logical bus object.

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18       **37. (currently amended)**    A computer-based audio generation  
19 system as recited in claim 36, wherein a logical bus object receives one or more of  
20 the assigned audio wave data streams and routes the audio wave data streams to  
21 the corresponding audio data buffer wave data consumer.

1           **38. (currently amended)**   A computer-based audio generation  
2 system as recited in claim 36, further comprising a synthesizer that generates a  
3 plurality of streams of audio wave data, wherein at least one of the streams of  
4 audio wave data is provided to different respective logical buses.

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6           **39. (currently amended)**   A computer-based audio generation  
7 system as recited in claim 36, further comprising a synthesizer that generates the  
8 one or more streams of audio wave data in response to a MIDI instruction.

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10          **40. (currently amended)**   A computer-based audio generation  
11 system as recited in claim 36, further comprising an audio wave data generation  
12 object configured to receive audio content and an instruction to generate the one or  
13 more streams of audio wave data.

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15          **41. (currently amended)**   A computer-based audio generation  
16 system as recited in claim 36, wherein each logical bus object corresponds to a  
17 single audio data buffer ~~wave data consumer~~.

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19          **42. (currently amended)**   A computer-based audio generation  
20 system as recited in claim 36, wherein at least two of the logical bus objects  
21 correspond to the same audio data buffer ~~wave data consumer~~.

1       **43. (currently amended)**    A computer-based audio generation  
2 system as recited in claim 36, wherein a plurality of audio wave data streams are  
3 assigned to at least one of the logical bus objects.

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5       **44. (currently amended)**    A data structure for an audio processing  
6 system implemented in a computing device, comprising:

7       a bus identifier parameter to uniquely identify a logical bus that is  
8 dynamically instantiated as a software component, and that corresponds to an  
9 audio data buffer wave data consumer;

10       a function identifier parameter to identify an effects-processing function of  
11 the audio data buffer wave data consumer;

12       a programming reference to identify the audio data buffer wave data  
13 consumer; and

14       wherein at least one stream of audio wave data is routed to a plurality of  
15 different logical buses, ~~with~~ the bus identifier parameter being defined according  
16 to the function identifier parameter of the corresponding audio data buffer wave  
17 data consumer.

1           **45. (currently amended)**     A method, comprising:

2           ~~providing generating one or more streams of audio wave data with an audio~~  
3           ~~wave data generation software component configured to receive when receiving~~  
4           ~~audio content and an a MIDI instruction to generate one or more streams of audio~~  
5           ~~wave data;~~

6           ~~providing an audio data buffer wave data consumer component configured~~  
7           ~~to receive the one or more streams of audio wave data;~~

8           ~~dynamically generating at least one logical bus component components~~  
9           ~~instantiated as software components in response to a need associated with~~  
10           ~~receiving the streams of audio wave data, the logical buses configured to route the~~  
11           ~~one or more streams of audio wave data to the audio data buffer wave data~~  
12           ~~consumer component; and~~

13           ~~dynamically releasing at least one of the logical buses bus components~~  
14           ~~when no longer needed to route a stream of audio wave data.~~

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16           **46. (currently amended)**     A method as recited in claim 45, wherein  
17           the audio wave data generation software component is a synthesizer.

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19           **47. (currently amended)**     A method as recited in claim 45, wherein  
20           the audio data buffer wave data consumer component ~~is a data buffer that~~  
21           performs an action of buffering audio wave data.  
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1       **48. (currently amended)**     A method as recited in claim 45, wherein  
2 the audio data buffer ~~wave data consumer component~~ performs an action of  
3 effects-processing the audio wave data.

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5       **49. (previously presented)**     A method as recited in claim 45, further  
6 comprising assigning a given one of the streams of audio wave data to a plurality  
7 of different logical bus components.

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9       **50. (original)**     A method as recited in claim 45, further comprising  
10 assigning one or more of the streams of audio wave data to the logical bus  
11 component.

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13       **51. (original)**     One or more computer-readable media comprising  
14 computer-executable instructions that, when executed, direct a computing system  
15 to perform the method of claim 45.

1           **52. (currently amended)**     A method, comprising:  
2           receiving a synthesizer MIDI instruction to generate multiple streams of  
3           audio wave data with a synthesizer software component;  
4           dynamically generating logical buses instantiated as software components  
5           ~~in response to a need associated with receiving the streams of audio wave data~~, the  
6           logical buses each corresponding to an audio data buffer ~~wave data consumer~~;  
7           creating a data structure and designating which of the logical buses  
8           correspond to an respective audio data buffers ~~wave data consumer~~;  
9           assigning at least one of the multiple streams of audio wave data to a  
10          plurality of the logical buses;  
11          routing an audio wave data stream assigned to a particular logical bus to the  
12          audio data buffer ~~wave data consumer~~ corresponding to said particular logical bus;  
13          and  
14          dynamically releasing at least one of the logical buses when no longer  
15          needed to route the audio wave data stream to the audio data buffer.

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17          **53. (original)**     A method as recited in claim 52, wherein a plurality of  
18          audio wave data streams are assigned to at least one of the logical buses.

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20          **54. (currently amended)**     A method as recited in claim 52, wherein  
21          each logical bus corresponds to a single audio data buffer ~~wave data consumer~~.  
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1           **55. (currently amended)**   A method as recited in claim 52, wherein  
2 at least two of the logical buses correspond to the same audio data buffer ~~wave~~  
3 ~~data-consumer~~.

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5           **56. (original)**   One or more computer-readable media comprising  
6 computer-executable instructions that, when executed, direct a computing system  
7 to perform the method of claim 52.  
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